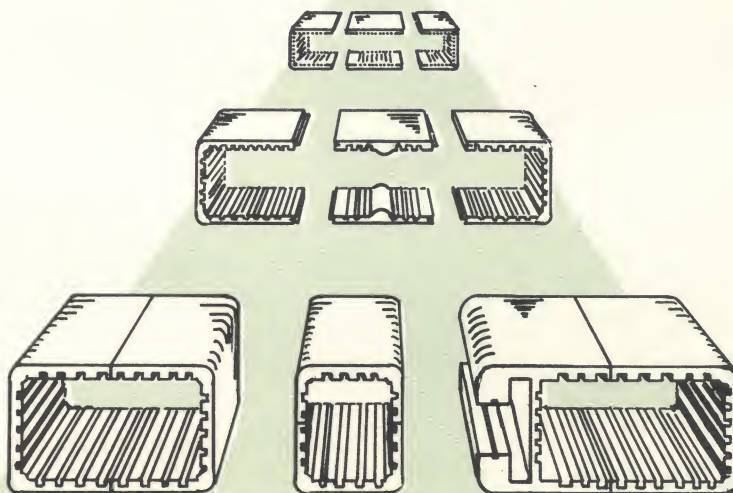


EXTRUDAPAK ENGINEERING

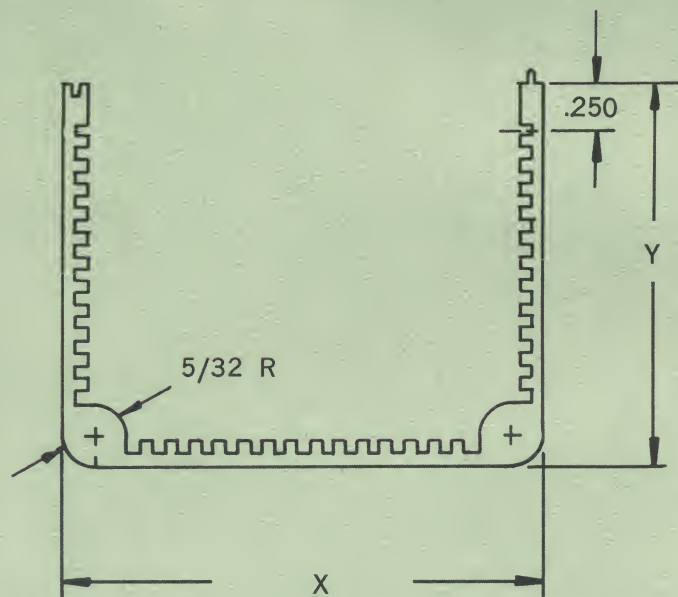
SELECTA FORM • POWERFORM

ELECTRONIC PACKAGING



SHORT FORM CATALOG

SELECTAFORM



DIMENSION X	DIMENSION Y	ORDER NUMBER
1.000	1.000	1001
1.250	1.250	1002
1.500	1.500	1003
1.750	1.750	1004
2.000	2.000	1005
2.500	2.000	1006
3.000	2.000	1007
3.500	2.000	1008
4.000	2.000	1009

LENGTHS:

Any length to 5 feet in stock lengths
over 5 feet on special order.

TOLERANCES:

Shape dimensions $\pm .010$ for .000
 $\pm .020$ for fractions.

Cutoff $\pm .020$ for lengths to 1 foot
add $\pm .020$ for each additional foot
range.

EXTENSIONS:

Refer to back page.

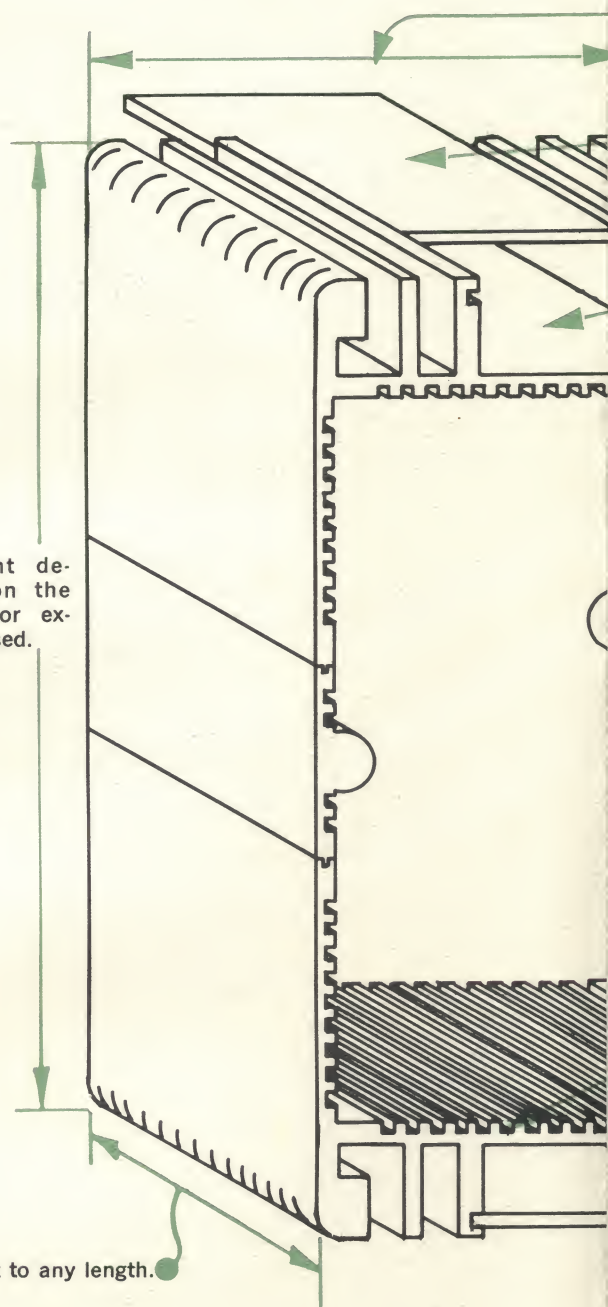
ORDER INFORMATION

All orders must include order number, length and quantity
of pieces.

EXTRUDAPAK

NEW STANDARD FOR EL

Any height de-
pending on the
extension or ex-
tensions used.



EXTRUDAPAK

MAIN OFFICES • 13214 CRENS

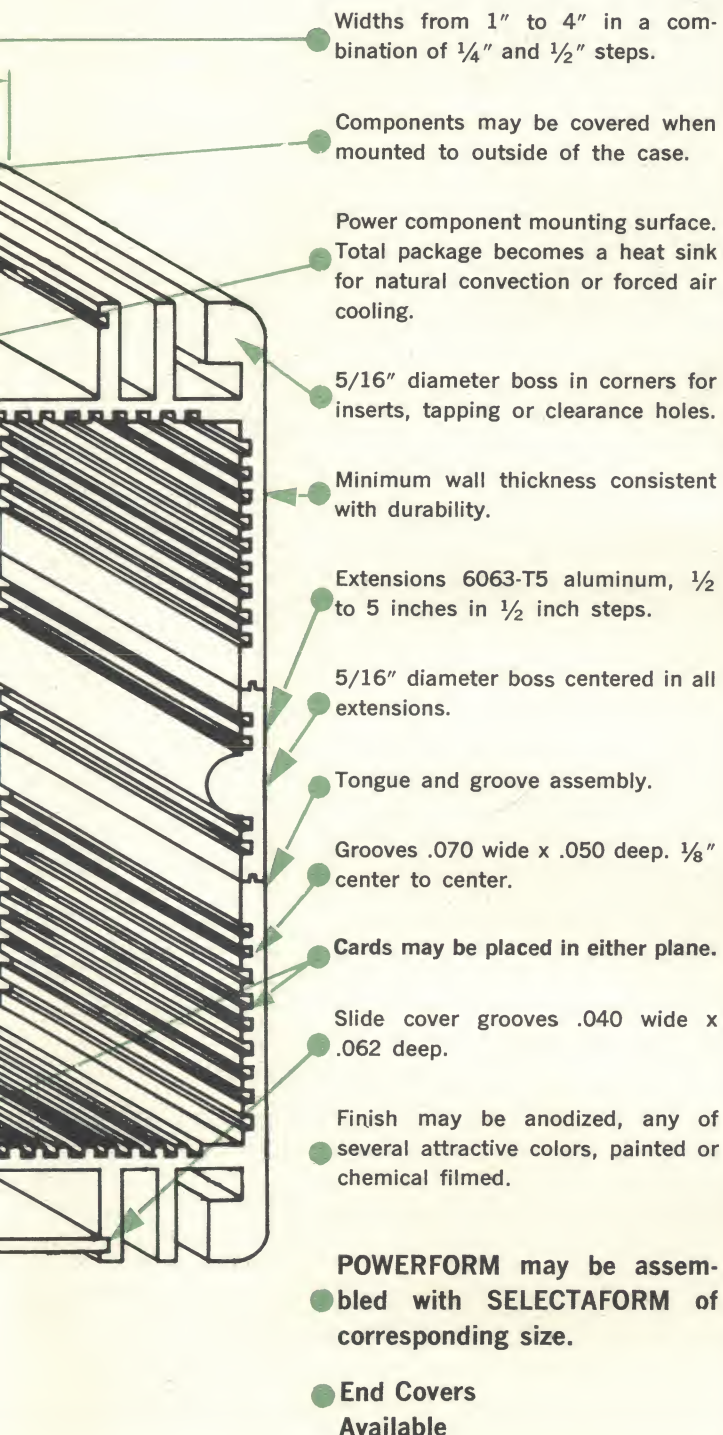
TELEPHONE DAVIS 9-7506

FAX SBD • G

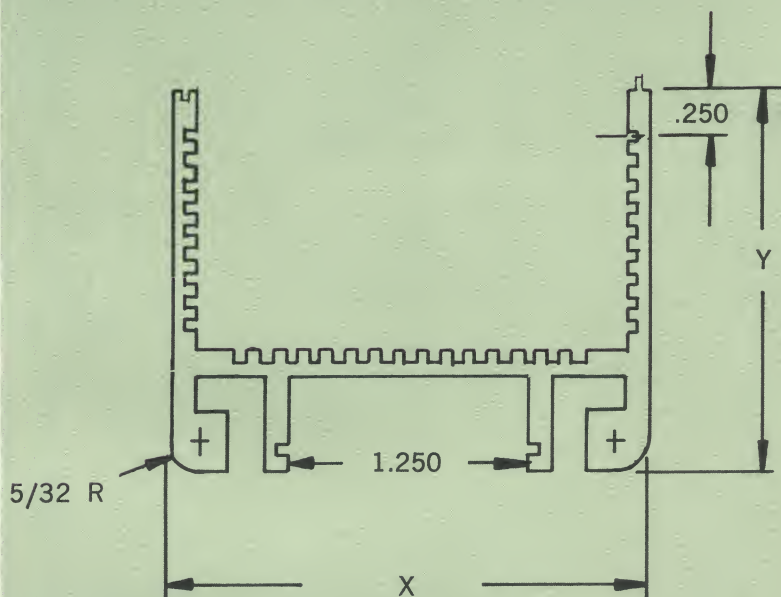
MANUFACTURING • 13127

ENGINEERING

ELECTRONIC PACKAGING



POWERFORM



DIMENSION X	DIMENSION Y	ORDER NUMBER
2.000	2.000	2001
2.500	2.000	2002
3.000	2.000	2003
3.500	2.000	2004
4.000	2.000	2005

LENGTHS:

Any length to 5 feet in stock lengths over 5 feet on special order.

TOLERANCES:

Shape dimensions $\pm .010$ for .000 $\pm .020$ for fractions.

Cutoff $\pm .020$ for lengths to 1 foot add $\pm .020$ for each additional foot range.

EXTENSIONS:

Refer to back page.

ENGINEERING

HAW BLVD. • GARDENA, CALIF.

TWX GARDENA 213 327-0810

GARDENA, CALIF

YUKON • HAWTHORNE, CALIF.

ORDER INFORMATION

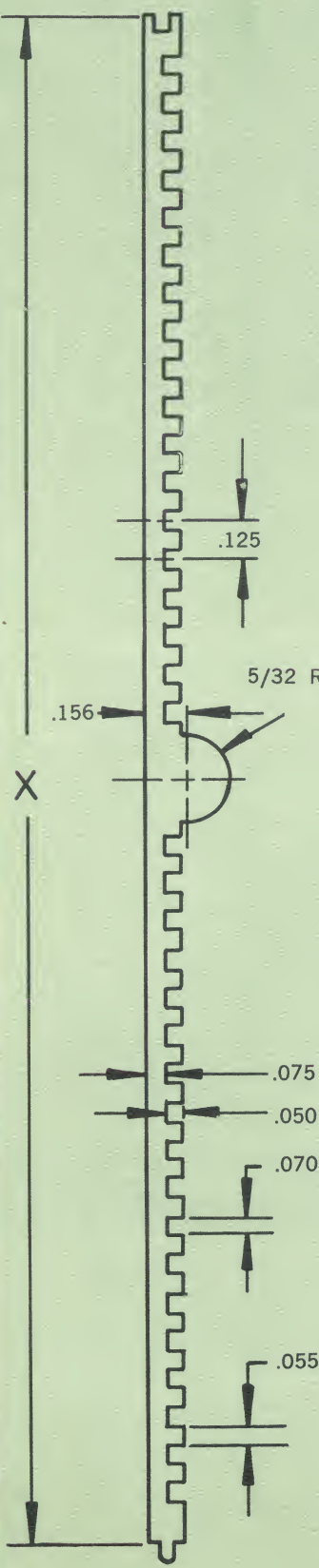
All orders must include order number, length and quantity of pieces.

Pat. Pend.

SELECTAFORM & POWERFORM EXTENSIONS

EXTENSION NUMBER ~	'X' DIM.
10	1½
11	1
12	1½
13	2
14	2½
15	3
16	3½
17	4
18	4½
19	5

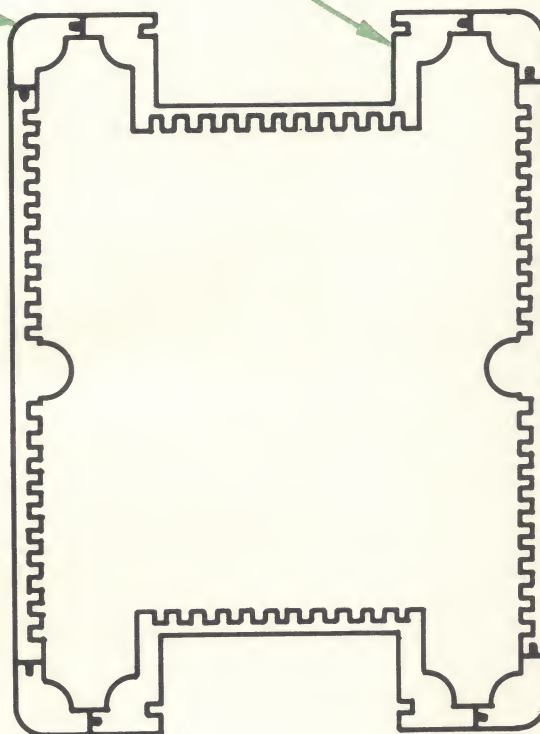
Note: Any quantity and size combination may be used to obtain desired configuration of enclosure.



CORNER & HEATSINK SHAPES FOR THREE DIMENSION EXPANSION

Corner No. 3001 may be used with any combination of extensions.

Heatsink No. 4001 may be used with SELECTAFORM, POWERFORM and all extensions.



MATERIAL

6063-T5 Aluminum.

FINISH

Satin — No Treatment.

TOLERANCES

Shape dimensions: $\pm .010$ for .000 — $\pm .020$ for fractions.

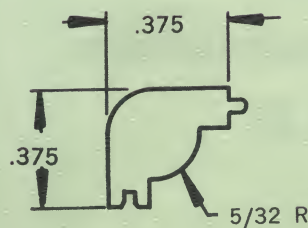
Cut off: $\pm .020$ for lengths to 1 foot. Add $\pm .020$ for each additional foot range.

LENGTHS

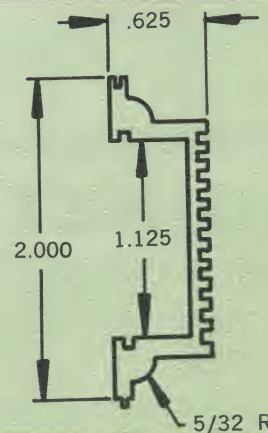
Any lengths to 5 feet in stock. Lengths over 5 feet on special order.

Pats. Pend.

CORNER NO. 3001



HEATSINK NO. 4001



SEND FOR COMPLETE CATALOG WITH DETAILED DRAWINGS

**EXTRUDAPAK INCORPORATED**

13218 Crenshaw Boulevard • Gardena, California 90249
FACULTY 1-2280 DAVIS 3-6160

November, 1963

TO: Extrudapak Sales Representatives

FROM: Don Weaver

SUBJECT: Technical Information Regarding Extrudapak Packaging.

The information below contains general data covering the basic material, recommended techniques in hermetic sealing, RF shielding, overall shape tolerances, some secondary operation tolerances, and basic thermal resistance calculations of the powerform.

The factory may be contacted at any time for any technical question the user may have which is not covered by this data sheet.

1. Material for all Extrusions is 6063-T5 aluminum.

A. Metallurgical aspects of 6063 Aluminum.

6063 contains silicon and magnesium in such proportions as to form magnesium silicide, thus making it capable of being heat treated. Though less strong than most of the 2000 or 7000 series alloys, the magnesium-silicon series possess good formability and corrosion resistance, with medium strength.

B. Chemical Composition of 6063:

1. Silicon .0.2 - 0.6
2. Iron 0.35
3. Copper 0.1
4. Maganese 0.1
5. Magnesium 0.45 - 0.9
6. Chromium 0.1
7. Zinc 0.1
8. Titanium 0.1
9. Others each .05 Total .15
10. Aluminum - remainder.

C. Temper-T5

This designation applies to aluminum alloys which are artifically aged without prior solution heat treatment. The artificial aging improves mechanical properties and dimensional stability.

(More)



2. Hermetic Sealing and R.F. Shielding

- A. Inert Gas Welding (Heliarc)
- B. Furnace Brazing
- C. Dip Brazing
- D. Tin plate or copper spike and cadmium plate, then lead base soldering.
- E. Aluminum soldering.

The above mentioned processes are for hermetic sealing or R.F. Shielding. A second method for R.F. shielding is effective: Lay .016 dia. aluminum wool beading in grooves. When two shapes are mated, the wool beading will go into slight compression. Use the same aluminum wool in flat stock for cover seal.

3. Tolerances

- A. Cutting
 1. Standard: $\pm .020/\text{ft.}$ All shapes on the same order and the same length will be held to $\pm .005/\text{ft.}$ in respect to each other.
 2. Special: $\pm .010/\text{ft.}$ cut price depends on quantity of cuts. Consult factory.
 3. Special: $\pm .005/\text{ft.}$ cut price depends on quantity of cuts. Consult factory.
 4. Allowable deviation from Square : 1°
- B. Flatness - Length: $.0125/\text{ft.}$
- C. Flatness - Width: $.004/\text{in.}$
- D. Twist - Length: $1/2^\circ/\text{Ft.}$
- E. Squareness of Channel Legs: 2°

(More)



4. Thermal Resistance - Powerform: Single Channel, 6 inches long.

A. 2001= $4.6^{\circ}\text{C}/\text{W}$

B. 2002= $4.3^{\circ}\text{C}/\text{W}$

C. 2003= $3.6^{\circ}\text{C}/\text{W}$

D. 2004= $3.5^{\circ}\text{C}/\text{W}$

E. 2005= $3^{\circ}\text{C}/\text{W}$

NOTE: Consult Engineering Department on power dissipation problems.


Don Weaver, Sales Manager

DW:sh

EXTRUDAPAK, INC.PRICE LIST**

	<u>ORDER NUMBER</u>	<u>PRICE PER FOOT</u>
<u>SELECTRAFORM</u>	1001	1.80
	1002	2.20
	1003	2.70
	1004	3.15
	1005	3.60
	1006	3.80
	1007	4.00
	1008	4.25
	1009	4.50
<u>POWERFORM</u>	2001	4.00
	2002	4.70
	2003	5.15
	2004	6.05
	2005	6.70
<u>EXTENSIONS</u>	10	1.35
	11	1.50
	12	1.70
	13	1.85
	14	2.00
	15	2.20
	16	2.35
	17	2.50
	18	2.70
	19	2.85
<u>CORNER</u>	3001	.55
<u>HEAT SINK</u>	4001	1.70
<u>CARDFORM</u>	5001	.35
	5002	1.09
	5003	3.96
	5004	2.85
<u>END COVERS</u> (State Dimensions)	Under 12"	1.00 each
	Over 12"	1.00 per ft.
<u>SLIDE COVERS FOR HEAT SINK</u>	Under 12"	.50 each
	Over 12"	.50 per ft.

CUTOFF: Add 20¢ per cut for excess over 3 cuts per foot.
All other cutting - no charge.

MINIMUM ORDER: \$20 (Contact factory for large quantity discounts)

EXTRUDAPAK, INC., 13214 Crenshaw Boulevard, Gardena, California
DAvis 9-7506 TWX: 213 327-0810 FAX: SBD Gardena, California

EXTRUDAPAK ENGINEERING KIT

Extrudapak "Instant Packaging" Engineering Kit, containing seven of the most often needed forms, is available from stock at \$20. The kit is comprised of the following items which are supplied in 11-3/4" lengths.

<u>Quantity</u>	<u>Type</u>	<u>Form</u>
1	Selectaform	1002
1	"	1005
1	"	1009
1	Powerform	2001
1	"	2005
2	Extension	12
2	"	16

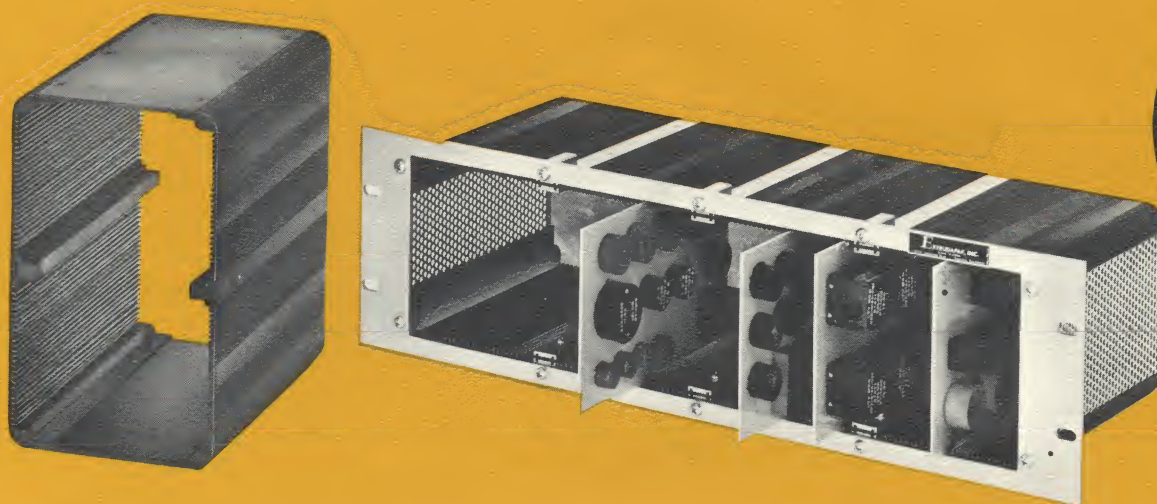


EXTRUDAPAK

CARDFORM ELECTRONIC PACKAGING

EXTRUDAPAK CARDFORM

Now available . . . from the manufacturer of Extrudapak modular electronic packaging . . . EXTRUDAPAK CARDFORM — designed specifically for rack mounting of printed circuit boards.



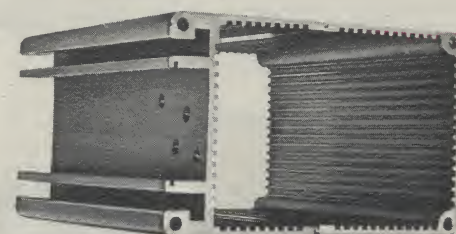
PAT. PEND.

Cardform extrusions are ideal for electronic packaging for computer card racks, complete systems and instrument cases. Cardform extrusions are manufactured from 6063 T-5 aluminum, providing excellent strength characteristics. Interior of the new Cardform container is precision grooved to permit easy insertion of circuit boards. Exteriors are fine-combed for appearance. Rack panel or front and rear instrument case panel mounting is simplified by a

mounting boss which is included on the clamp extrusions.

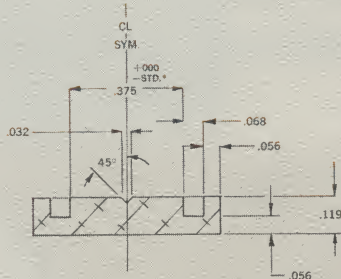
Cardform package size and shape is limited only by the type and quantity of material to be enclosed. Extrusions are available in any length. Of special importance to the package designer — Cardform containers can be anodized in color to permit easy container identification or function. All Cardform containers meet Extrudapak's seven quality standards: material, workmanship, selection, versatility, appearance and guarantee.

Companion to the new Cardform container is Extrudapak's modular packaging line. Ideal for smaller electronic packaging for power sources, delicate instruments and complete assemblies.

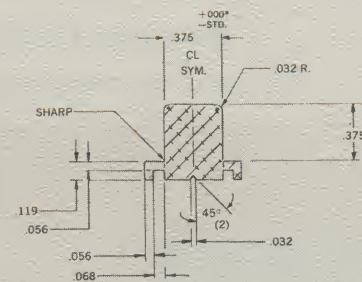


PAT. PEND.

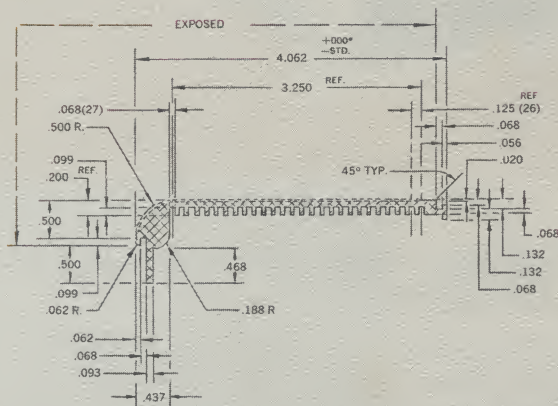
CARDFORM EXTRUSION SPECIFICATIONS



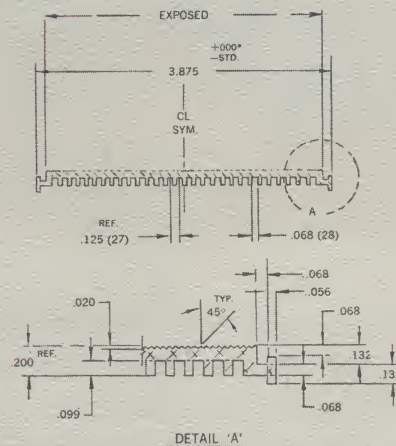
CARDFORM NO. 5001



CARDFORM NO. 5002



CARDFORM NO. 5003



CARDFORM NO. 5004

Standard Tolerances For Extruded Shapes Apply Unless Shown Otherwise.

Specify Extrudapak containers for finest precision at lowest cost. Extrudapak is the leading manufacturer of extruded aluminum packaging for the electronics industry. If you have a packaging problem, please contact us for assistance. Extrudapak has the answer.



EXTRUDAPAK, INC.

13214 Crenshaw Boulevard • Gardena, California

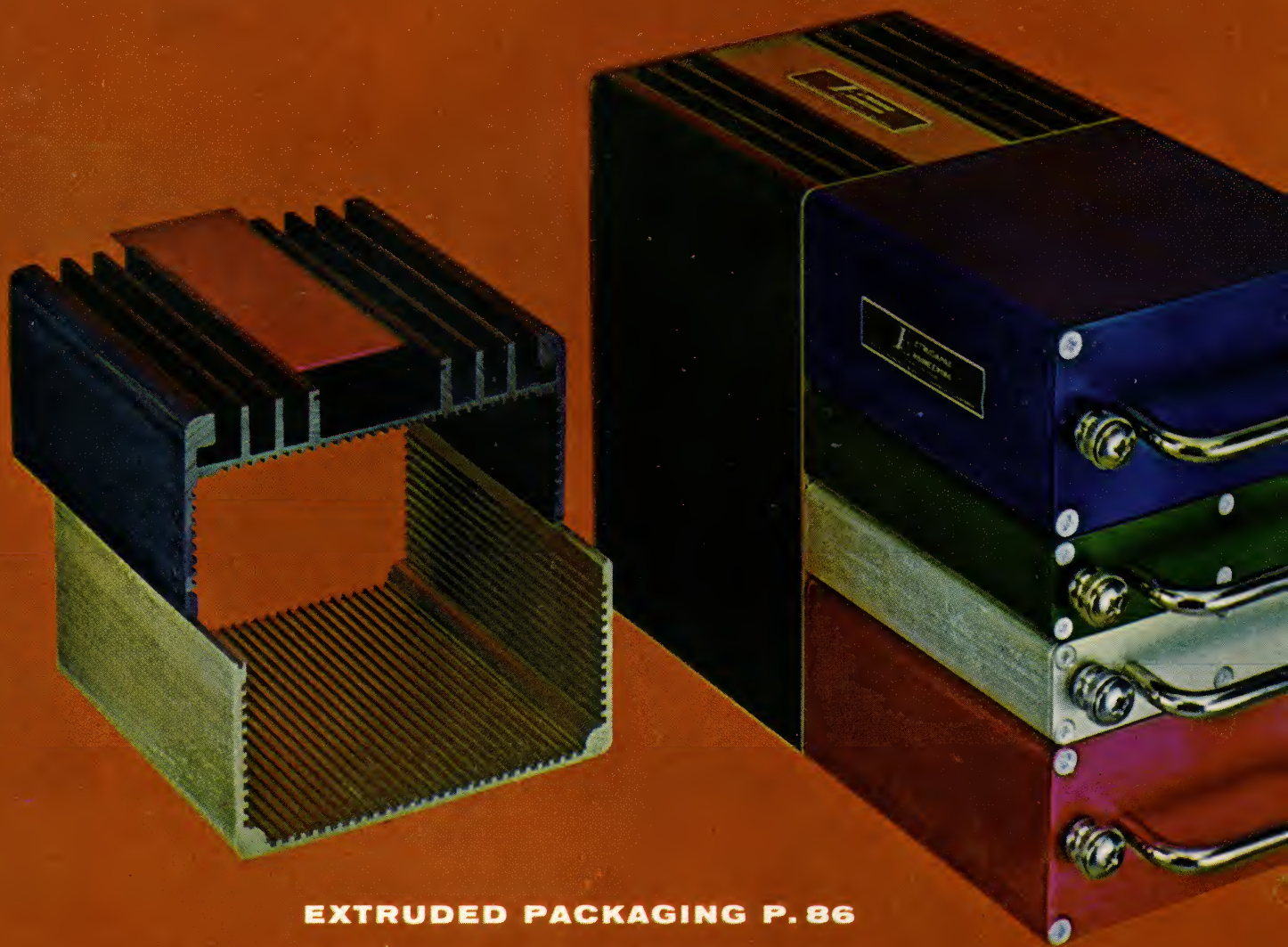
EDN

ELECTRICAL

DESIGN

NEWS

A CAHNERS PUBLICATION



EXTRUDED PACKAGING P. 86

JUNE

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NEWS

A CAHNERS PUBLICATION



KAGING P. 86

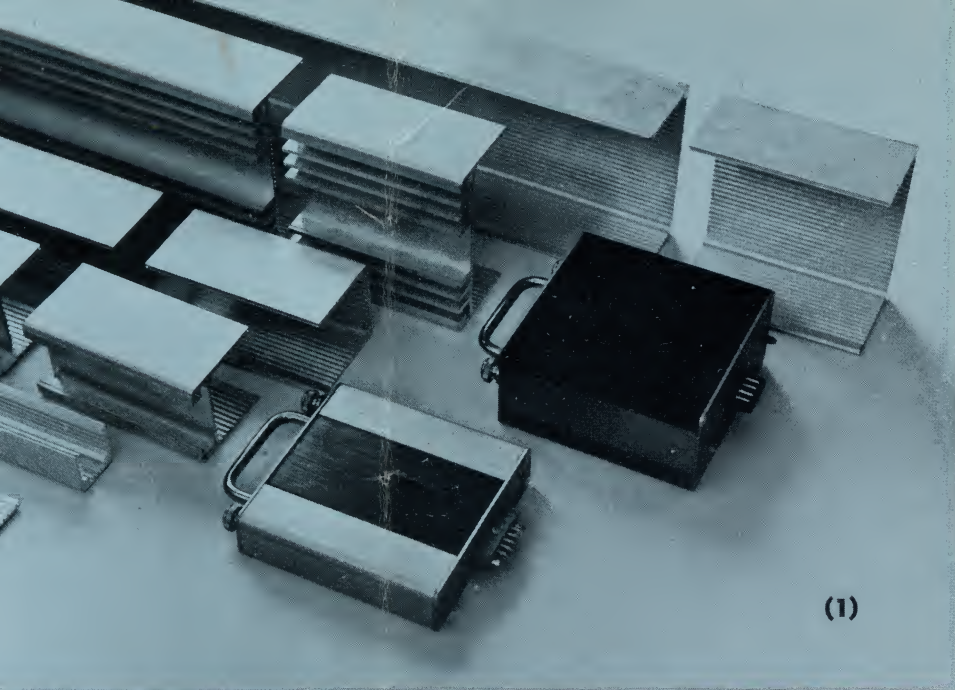
JUNE 1963

* COVER STORY

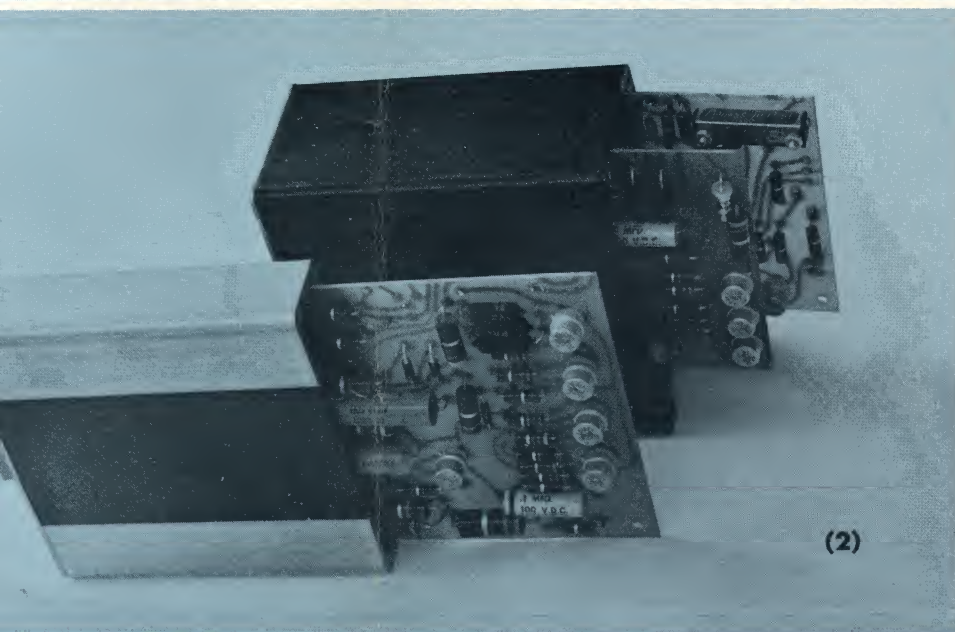
Convenient

A line of aluminum extrusions available in various exterior finishes provides the designer with a ready-made package. These extrusions provide smooth surfaces. A power component mounting surface may be mounted external to the package. When mounted on this surface, the package components may be covered to provide protection.

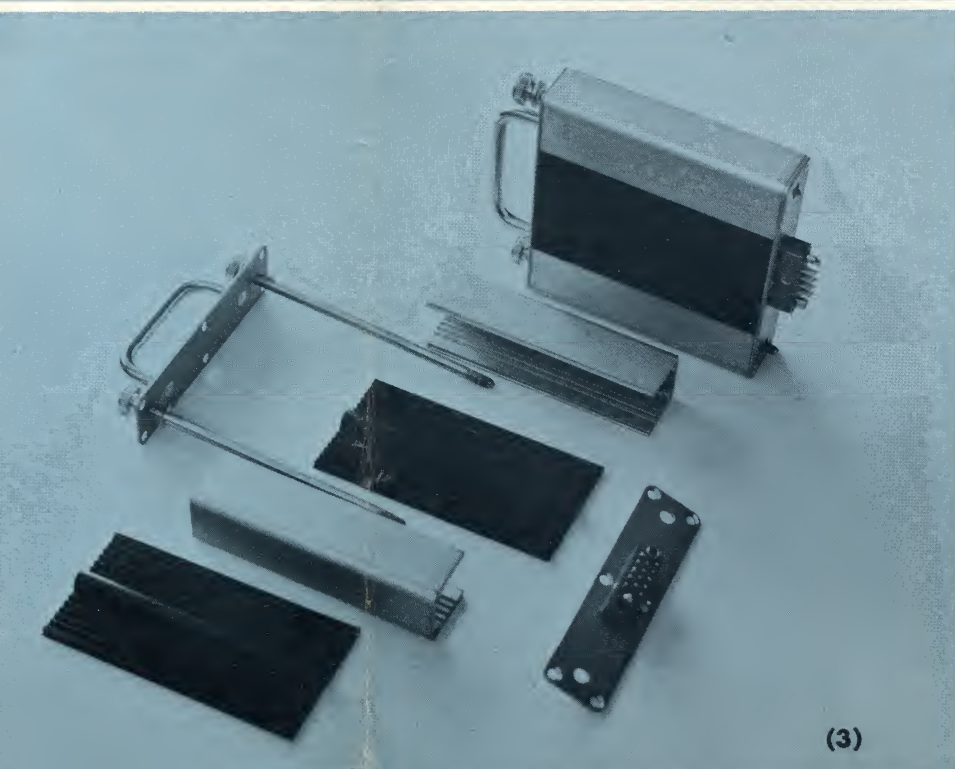
Previously, when designing a new



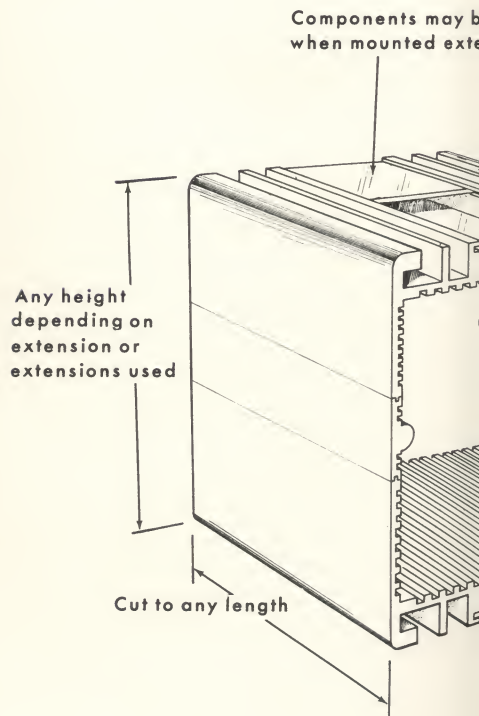
(1)



(2)



(3)



EXTRUSIONS are available from 1 inch to 4 inches in height. Any height may be obtained by adding one or more extensions. The surface may be covered to provide a smooth finish. Extrusions may be joined together to give variety of sizes and shapes. Extrusions may be joined between individual shapes. Finish may be anodized or chemically filmed.

MANY SIZES (1) and shapes are available to provide a variety of package designs. Low-cost extrusions are available in any length to 5 ft.

CARD GROOVES (2) in either plane are integral part of the extrusion. They may be placed anywhere within enclosure. End plates are used to close the extrusions.

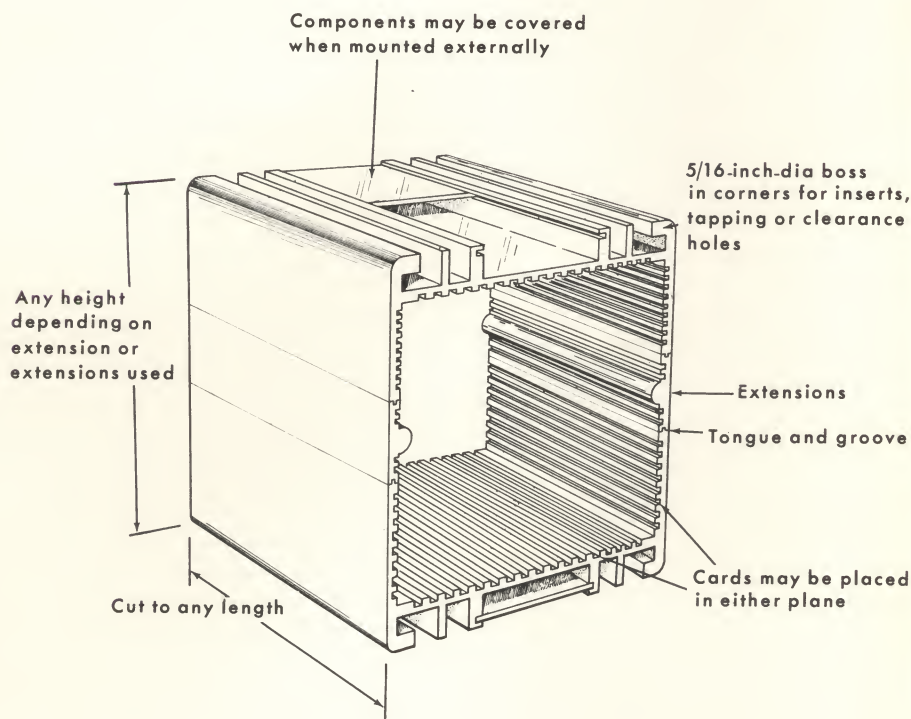
RAPID ASSEMBLY (3) of package section is accomplished by using the extrusions through end covers.

* COVER STORY

Convenient Extrusions Provide

A line of aluminum extrusions available in a number of shapes, sizes and exterior finishes provides the design engineer with a clean, functional, ready-made package. These extrusions have card grooves on all interior surfaces. A power component mounting surface allows power transistors to be mounted external to the package. When the power transistors are mounted on this surface, the package becomes the heat sink. The external components may be covered to provide a smooth surface.

Previously, when designing a new piece of equipment, the engineer



EXTRUSIONS are available from 1 inch to 4 inches wide in increments of 1/4 inch. Any height may be obtained by adding one or more extensions. Power-component mounting surface may be covered to provide a smooth package appearance. Shapes are compatible with one another to give variety of sizes and shapes. Tongue-and-groove assembly is used between individual shapes. Finish may be anodized any of several colors, painted or chemically filmed.

MANY SIZES (1) and shapes are available to provide off-the-shelf packaging. Low-cost extrusions are available in any length to 5 ft.

CARD GROOVES (2) in either plane are integral part of package. Cards may be placed anywhere within enclosure. End plates are used to secure package extrusions.

RAPID ASSEMBLY (3) of package section is accomplished by machine screws through end covers.

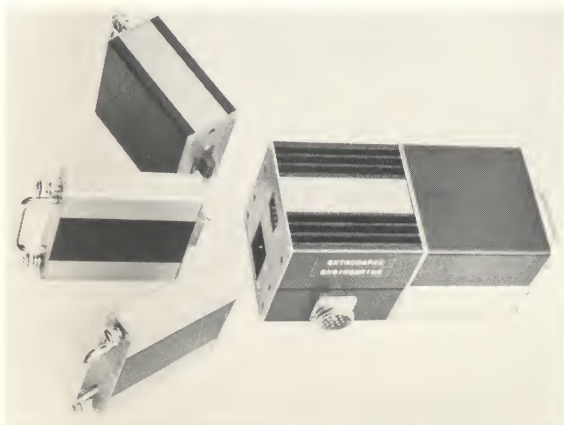
SELECTAFORM POWER

Versatile Packaging

designed his package in conjunction with his circuitry. Cost of dies used with extrusions normally makes development costs high. The alternative to this is to use sheet metal in the development package. It must be folded or cut to shape and secured with welding, riveting or sheet-metal machine screws. Tolerance stability is expensive. Accessories, such as heat sinks or card slides, have to be attached separately. A change to extrusions, if used at all, generally comes as a modification after production begins.

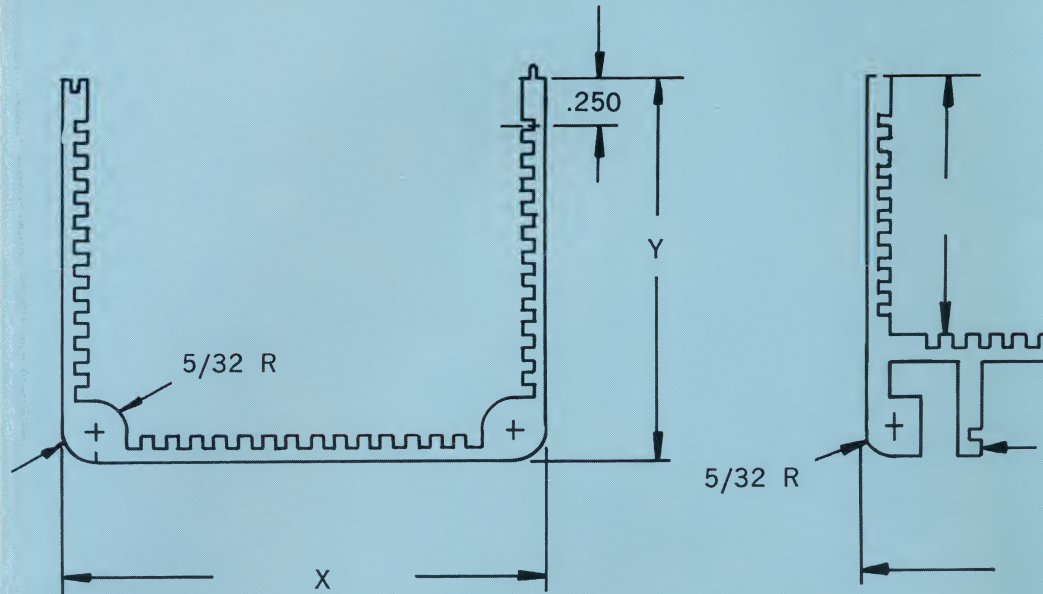
This line of off-the-shelf aluminum extrusions will allow the development engineer to choose his prototype package as he is building the circuitry. The extrusions are available in any quantity so that costs for a design change during development are insignificant. Packages may be made larger or smaller by merely changing side increments. The card slides are an integral part of the extrusion and will reduce mounting problems. Heat-dissipation problems will be reduced by using the mounting area designed for power components. Aluminum extrusions have good dimensional stability and will reduce tolerance problems encountered in manufacturing.

"Powerform" and "Selectaform" extrusions are the product of Extrudapak Engineering, Gardena, Calif.



DIMENSIONAL STABILITY of aluminum extrusions allows stacking of components.

of EDN (Electrical Design News)



DIMENSION X	DIMENSION Y	ORDER NUMBER	DIMENSION X
1.000	1.000	1001	
1.250	1.250	1002	2.000
1.500	1.500	1003	2.500
1.750	1.750	1004	3.000
2.000	2.000	1005	3.500
2.500	2.000	1006	4.000
3.000	2.000	1007	
3.500	2.000	1008	
4.000	2.000	1009	

LENGTHS: Any length to 5 feet in stock lengths over 5 feet on

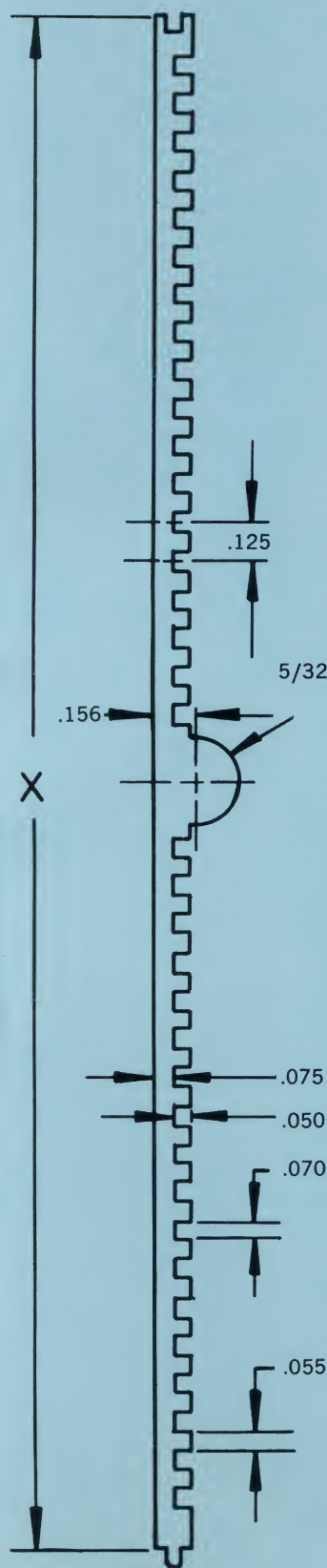
TOLERANCES: Shape dimensions $\pm .010$ for .000 $\pm .020$ for fractional
Cutoff $\pm .020$ for lengths to 1 foot add $\pm .020$ for e

EXTENSIONS: Refer to back page.

ORDER INFORMATION

All orders must include order number, length, and quantity.
Pat. Pend.

SELECTAFORM & POWERFORM EXTENSIONS



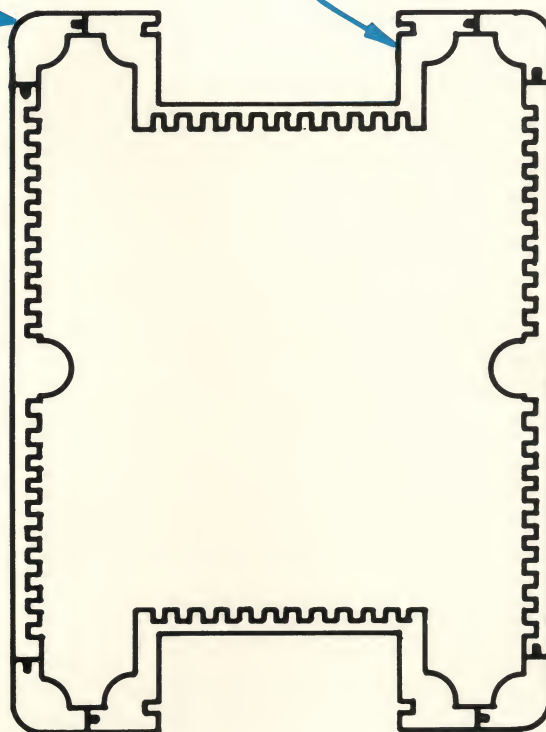
EXTENSION NUMBER ~	'X' DIM.
10	1/2
11	1
12	1 1/2
13	2
14	2 1/2
15	3
16	3 1/2
17	4
18	4 1/2
19	5

5/32 R Note: Any quantity and size combination may be used to obtain desired configuration of enclosure.

CORNER & HEATSINK SHAPES FOR THREE DIMENSION EXPANSION

Corner No. 3001 may be used with any combination of extensions.

Heatsink No. 4001 may be used with SELECTAFORM, POWERFORM and all extensions.



MATERIAL

6063-T5 Aluminum.

FINISH

Satin — No Treatment.

TOLERANCES

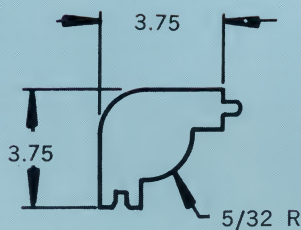
Shape dimensions: $\pm .010$ for .000 — $\pm .020$ for fractions.

Cut off: $\pm .020$ for lengths to 1 foot. Add $\pm .020$ for each additional foot range.

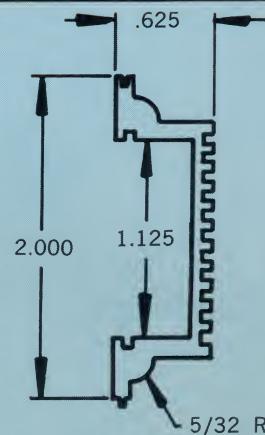
LENGTHS

Any lengths to 5 feet in stock. Lengths over 5 feet on special order.

CORNER NO. 3001



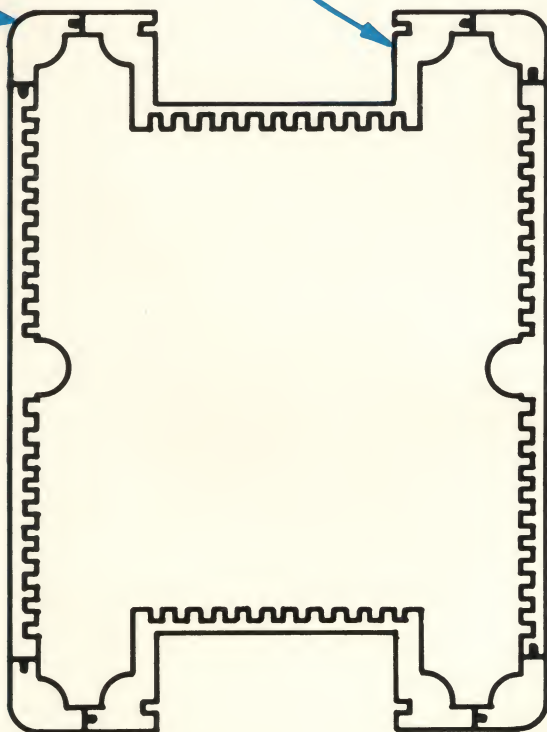
HEATSINK NO. 4001



CORNER & HEATSINK SHAPES FOR THREE DIMENSION EXPANSION

Corner No. 3001 may be used with any combination of extensions.

Heatsink No. 4001 may be used with SELECTAFORM, POWERFORM and all extensions.



MATERIAL

6063-T5 Aluminum.

FINISH

Satin — No Treatment.

TOLERANCES

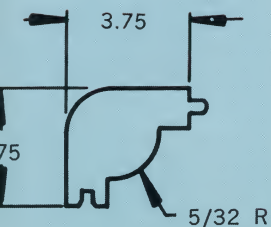
Shape dimensions: $\pm .010$ for .000 — $\pm .020$ for fractions.

Cut off: $\pm .020$ for lengths to 1 foot. Add $\pm .020$ for each additional foot range.

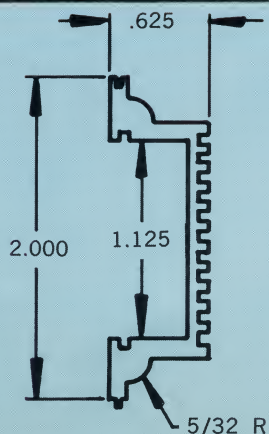
LENGTHS

Any lengths to 5 feet in stock. Lengths over 5 feet on special order.

CORNER NO. 3001



HEATSINK NO. 4001



REPRESENTED BY

EXTRUDAPAK ENGINEERING

MAIN OFFICES • 13214 CRENSHAW BLVD. • GARDENA, CALIF.

TELEPHONE DAVIS 3-6160 • TWX COMPTON CAL 6014

FAX SBD • GARDENA, CALIF

MANUFACTURING • 13127 YUKON • GARDENA, CALIF.